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COSTS AND INTERNAL RESERVES
IN TWO RUMANIAN INDUSTRIES

[Summary: The following report, which covers two articles from the December 1953 and January 1954 issues of Probleme Economice, discusses efforts made by Rumania's metallurgical and chemical industries to decrease production costs. The first article discusses the various cost factors of the chemical industry and suggests methods for lowering them. The second article deals with the general problem of the internal reserves of a factory and their direct relationship to production costs and labor productivity.

Numbers in parentheses refer to appended sources.]

Costs in Rumania's Chemical Industry

Following the 19-20 August 1953 speech of Gheorghiu-Dej, workers and administrators of Rumania's chemical industry started to consider a series of measures for the overall improvement of the industry's expense program.

The chemical industry belongs both to the consumer goods category and to the industrial products category. It plays an important role in the economy of the nation in that it serves the needs of the agriculturalist by increasing his yields, and of the consumer by providing him with the goods necessary to maintain or increase his standard of living.

To reduce production costs successfully in the chemical industry, it is necessary to understand the component parts of the industry's expenses and to reduce them in the most expedient way. The chemical industry is particularly characterized by the fact that the worker has little to do except operate the machines from the time the raw materials enter the plant until the finished product is obtained.

The following table compares expense components (in percent of total expenses) in the chemical industry with those in the coal, textile, and machinery industries:

<u>Expenses</u>	<u>Chemical Industry</u>	<u>Coal Industry</u>	<u>Machine Building Industry</u>	<u>Textile Industry</u>	
				<u>Cotton</u>	<u>Wool</u>
Raw materials	58.97	--	48.9	56.20	51.46
Other materials	3.85	--	6.3	5.01	9.53
Equipment	3.10	22.02	8.1	5.68	3.49
Fuel	2.86	3.81	1.6	1.64	1.87
Power, water, and steam	7.03	6.68	2.1	3.31	2.73
Total	75.81	32.51	67.0	71.84	69.08
Wages	10.02	29.78	21.2	15.12	15.43
Bonuses	0.99	2.95		1.47	1.47
Amortization	8.50	27.11		6.34	6.95
Other expenses	4.68	7.65		5.23	7.07
Total	100.00	100.00	100.0	100.00	100.00

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Expenses for materials, fuel, equipment, and power in the chemical industry are 75.81 percent of the total expenses, as compared to 32.51 percent in the coal industry. On the other hand, wages of the coal industry are 29.78 percent of the total expenses, but in the chemical industry they are only 10.02 percent. These facts show that in order to reduce expenses, it is necessary to reduce the amounts of materials used, as well as electrical energy, water, steam, and all other physical expenses of the industry.

The re-examination of the 1953 norms had a favorable effect on factories under the Ministry of Chemical Industry. By reducing the time norms by 15.9 percent and by applying the latest technical-organizational measures, labor productivity was increased by 18.9 percent, without any decrease in the average worker's salary. For example, the Carbochim plant in Cluj reduced the time norms for the manufacture of polishing stones by 9.9 percent. This was accomplished through a change in two of its lathes, with the result that labor productivity rose 3.97 percent. Because of this achievement, it was possible to transfer nine workers to other sections of the factory.

Through a sounder organization at each work site, new norms are fulfilled 156 percent, instead of 126 percent as in the past [in the chemical industry?]. General growth in labor productivity was 30 percent, and costs were reduced from 0.193 lie per ton to 0.172 lie per ton.

Still another factor contributing to increased labor productivity is the general technical knowledge of the workers, technicians, and engineers of a factory. The 1953 State Plan calls for a 42 percent increase in the number of trained workers, as compared to the 1952 figures. Compared to 1952, the number of trained workers in the chemical industry rose 222 percent in 1953, and the number of students enrolled in intermediate industrial chemical schools rose 186 percent.

But by far the most important factor in the struggle for lower production costs is a regular fulfillment and surpassing of plan norms. Exceeding norms reduces factory expenses, with a resulting reduction in costs. For example, the sulphuric acid factory in Valea Calugareasca was called upon to reduce sales prices by 12.55 percent during the third quarter of 1953. This plan was not fulfilled, and prices remained 6.27 percent above the plan. The reason for this failure is attributed primarily to the fact that production norms were fulfilled only 60.7 percent.

The General Directorate of the Organic Chemistry Industry (Directia Generala a Industriei Chimice Organice) had expenses amounting to 862,774 lei above the plan during the third quarter of 1953. This was caused by failure to fulfill the production plan for that period. Many other examples could be given of instances where increased production brought lower expenses and a resulting decrease in sale prices.

The fulfillment of a factory's production plan is largely determined by the measure to which its full production capacity is being used. Thus, Chimico-Metalurgica factory No 2 reduced costs by 6.56 percent during the third quarter of 1953 by making full use of its installations and equipment, and the Banloc tire factory achieved a cost reduction of 0.82 percent by making better use of its machinery.

Another important way of reducing costs is to reduce the use of raw materials, fuel, electrical energy, steam, and water, which constitute the major items of expense in the chemical industry. The following examples show how the irrational use of specific items will have an adverse effect on cost prices: The directorate incurred losses amounting to 2.37 percent of the total value of

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products, during the third quarter of 1953, from wastage of raw materials. By using greater amounts of ammonia than specified in the production of wholesale bicarbonate, Soda Factory No 1 incurred unplanned expenses of 198,970 lei during the third quarter of 1953. Similarly, the Marasesti glue factory incurred a loss of 63,900 lei because of a 25-percent increase in the use of glue shavings, and Chimico-Metalurgia Combine No 2 and the chemical plant in Turda incurred losses of 179,634 lei because of the increased amounts of mercury which were used in the production of caustic soda.

One of the major causes of high expenses is the failure to make repairs on time. Other sources of unforeseen expenses are the failure to unload freight cars on time, penalties imposed by contract for failure to deliver goods on time, fines imposed by the state finance organs, interest paid on loans, and fines paid or blocked bank assets because of the poor financial condition of the factory. For example, during the first 9 months of 1953, the Marasesti factory paid 1,760,000 lei in fines because of failure to unload freight cars on time. Soda factory No 1 paid fines of 329,759 lei plus other unforeseen expenses of 120,212 lei for failure to meet contractual obligations from 1 April to 31 August.

By the way of summary, it must be stated that there is a large potential of unused internal reserves in the chemical industry which, if fully utilized, would greatly aid in the reduction of production cost and sales prices.(1)

Internal Reserves in Rumania's Iron and Steel Industry

To fulfill the requirements of the new economic policy, Rumania's heavy industry must expand its activities so as to produce increasing amounts of machinery and equipment. In view of this task, Rumania's iron and steel industry must supply the nation's heavy industry with all the needed steel, iron and sheet metal.

The most pressing problem to be solved in the metallurgical industry is the mobilization of its internal reserves. During the capitalist regime, both the Resita and Hunedoara works were grossly negligent in the development of their internal reserves. Following the nationalization of industries, however, Rumania's iron and steel enterprises developed rapidly, and the average monthly production of steel was 400 percent greater in 1953 than in 1938.

Socialist competitions were first started at the Gheorghiu-Dej steel combine, where party and Soviet instructions were strictly followed in all matters. This and other combines are now making fuller use of their internal reserves.

There are several phases of the iron and steel industry which require closer scrutiny from the point of view of economies. First, the transport of molten iron, ferroalloys, ingots, and metal bricks is closely connected to production processes. Second, the industry's complex production aggregates, power installations, and water, gas, and compressed air installations all necessitate costly maintenance operations amounting to as much as 25.3 percent of the total production costs. Third, the raw materials used in the iron and steel industry, such as minerals or refractory and smelting materials, make up 50-55 percent of the total production expenses. Aside from the need to cut the amount of fuel used, which constitutes 10-15 percent of the total production expenses, there is a still greater need to discover and make full use of the industry's internal reserves. Manpower costs cannot exceed 5-6 percent of the total expenses per unit of product, but any further reduction in this amount would have a beneficial result on the production cycle.

There are various other methods of achieving economies in the iron and steel industry:

1. Saving raw materials and equipment.
2. Making rational use of ferrous and nonferrous scrap and starting an all-out drive for collection of scrap iron and copper.

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3. Sorting and grading the iron ore more efficiently before placing it in the furnace.
4. Improving the storage of raw materials in warehouses and achieving more rational cutting processes of sheet metals.
5. Reducing usage of coke and handling mineral waste more efficiently.

Economies in raw materials have increased markedly at several iron and steel combines throughout Rumania. Thus, during the third quarter of 1953, the Martin furnace of the ISCT [not further identified] factory reduced the amounts of scrap iron used by 8.54 percent per ton of steel, and further reduced the use of sheet billet in the production of sheet metal by 5 kilograms per ton of products. The IMB (Industria Metalurgica Banatiana, Metallurgical Industry of the Banat) reduced the use of ingots by 3 kilograms per ton of sheet metal, and the Industria Sarmii factory in Braila reduced the amount of ingots by 10 kilograms per ton of sheet metal.

Better firing of rapid charges can substantially increase the productivity of steel furnaces. Moreover, by mechanizing all operations of the combine, better organization of the work site can be achieved. Still another factor in increasing the production capacity of metallurgical equipment is the proportionate and equal utilization of all machinery in any given section. For example, in a furnace having a capacity of 15,000 tons per year, both the cowpers and blowers must have a capacity commensurate with the capacity of the furnace. If the blower operates with only 80 percent efficiency, 20 percent of the capacity of both cowper and blower remains unused.

Methods which call for periodic work stoppage for preventive repairs are of great importance in saving time and increasing the internal reserves. For example, the Gheorghiu-Dej plant had a rolling mill which used to operate continually, but at the end of almost every 2-month period some 6 days were wasted in repairs. After the adoption of Soviet methods of preventive repairs, the rolling mill was stopped for 16-24 hours every tenth day; this procedure resulted in a 50-percent reduction [sic] in stoppage for repairs and breakdowns. Moreover, the yearly overhauling of rolling mills now takes a much shorter time.

Another example is furnished by the Republica plant where, by timely acquisition of repair equipment and by a thorough organization of the labor force, a general improvement of factory conditions has been obtained. Instead of 21-24 days, repair of the rolling mill requires only 12-14 days; the result is an increased usage of internal reserves. This factor alone resulted in the production of 3,000-4,000 additional tons of pipes per year.

By following Soviet examples, the production of Rumania's rolling mills has increased greatly. For example, in 1953 the Republica factory's rolling mills had a 35-percent greater production capacity than in 1949, mainly because of the improved methods of repair and maintenance.

Any effort to mobilize the internal reserves of a factory, whether by reducing raw materials used or by increasing the production capacity of equipment, can give satisfactory results only when it is supported by a "new type" of factory administration. In this new type of administration, bookkeepers, financial planners, and economists must devise foolproof methods of analyzing the progress of work and workers. The new type of factory administration not only must be concerned with general factory management, but must seek out and evaluate even the most minute processes and innovations.

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Generally speaking, the cost of products in the metallurgical industry is dependent primarily on the amount of raw materials used. The cost of these materials, plus the cost of fuel and power, may safely reach 60-70 percent of the total production costs. The next item consists of the working capital of a factory, which amount can equal 20-25 percent of the cost. The third item includes general factory expenses, which can total a maximum of 10 percent. The last category is composed of manpower costs, which usually amount to 5-6 percent of the total cost price.

In Martin furnaces, the cost of fuel and raw materials varies from 65 to 80 percent of total costs. The cost of ingot production includes the cost of fuel, maintenance, repairs, transport of raw materials, and, mainly, preparation of charges. Reduction in the cost of any product of the metallurgical industry is directly dependent upon the full use of internal reserves; that is, utilization of the full production capacity of each enterprise.(2)

SOURCES

1. Probleme Economice, Dec 53 (article by M. Florescu)
2. Ibid., Jan 54 (article by L. Radu)

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